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Two Species of Batflies (Diptera, Nycteribiidae) New to Japan with Description of a New Subspecies*

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Abstract : *Penicillidia monoceros* and *Basilia truncata* are newly recorded from Japan. The latter is described as a new subspecies *endoi*. Both species were collected from arboreal bats of northern Japan.

Knowledge on Japanese batflies had long been limited to species parasitic on cave-roosting bats except "*Stylidia tarsalis* Kishida, 1932" which is said to have been collected from *Nyctalus noctula* and *Myotis* spp. of Japan proper. However, the identity of this batfly is quite vague since Kishida's description is brief and his specimens are unavailable at present. Maa (1967) who reviewed Diptera Pupipara of Japan guessed the presence of several batfly species on arboreal bats in this country. This guess was first evidenced by the discovery of *Basilia rybini japonica* Theodor from *Myotis frater kaguyae* of Hokkaido (Theodor, 1973). Here will be added two more species from arboreal bats of northern Japan, one of which will be described as a new subspecies. One unit in relative measurements is 0.05 mm.

RECORDS AND DESCRIPTION

***Penicillidia monoceros* Speiser, 1900**

Specimens examined. 2 ♂ 2 ♀ ♀. 1 ♀, 9 VIII 1963, Nukabira, Hokkaido, ex *Myotis macrodactylus*, Z. Ono. 1 ♀, 3 VIII 1974, Hokkaido, ex *Myotis daubentoni*, K. Endo. 1 ♂, 14 VIII 1974, Hokuto, Koshimizu, Hokkaido, ex *Eptesicus parvus* (= *E. nilssoni parvus*), K. Endo. 1 ♂, ex *Murina leucogaster*?, K. Endo.

Notes. Differential characters of this species from *Penicillidia dufourii* were made clear through the detailed study by Húrka (1959, 1969). Japanese specimens coincide well with European or Central Asian *monoceros* described by Húrka (*op. cit.*). This is

* Notes on Diptera Pupipara of Japan 5. Mogi (1975, 1976, 1977a and b) in the references are now designated as 1, 2, 3 and 4 of this series, respectively.

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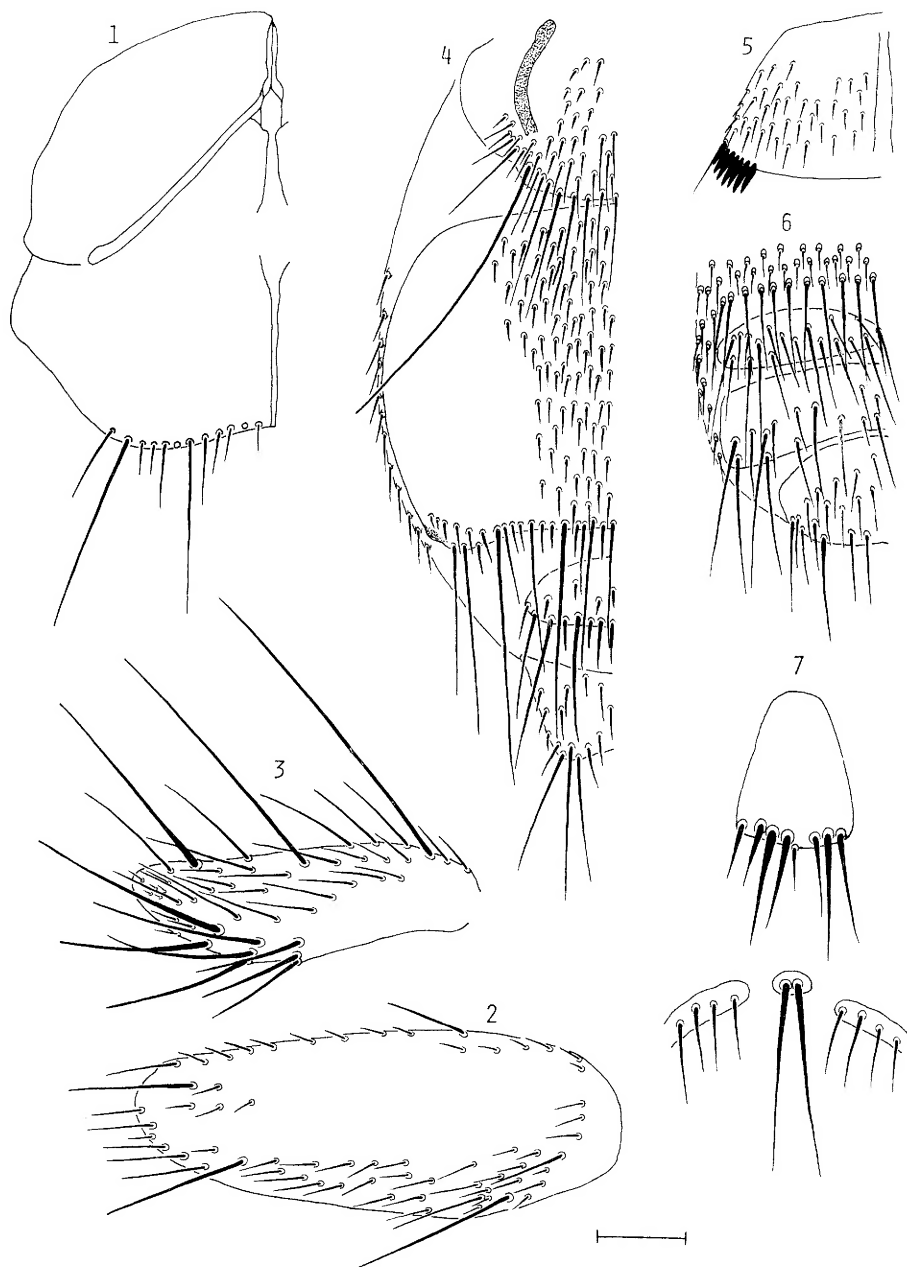
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the first known batfly common to Europe and Japan. The known hosts in Europe are arboreal bats, of which *Myotis daubentoni* is considered to be principal (Hürka, 1964). Also, the known hosts in Japan are arboreal except *Myotis macrodactylus*, which is considered to be an accidental host since *monoceros* is extremely rare on this bat. This batfly has been said to share the same geographical range with *P. dufourii*, but the latter probably does not occur in northern Japan. Its principal hosts are cave-roosting *Myotis*. In northern Japan, this ecological group is represented only by *M. macrodactylus*, from which *dufourii* has not been found despite rather extensive examinations. This discordance in geographical ranges, if firmly proved, can be an additional evidence for the independency of *monoceros* from *dufourii*.

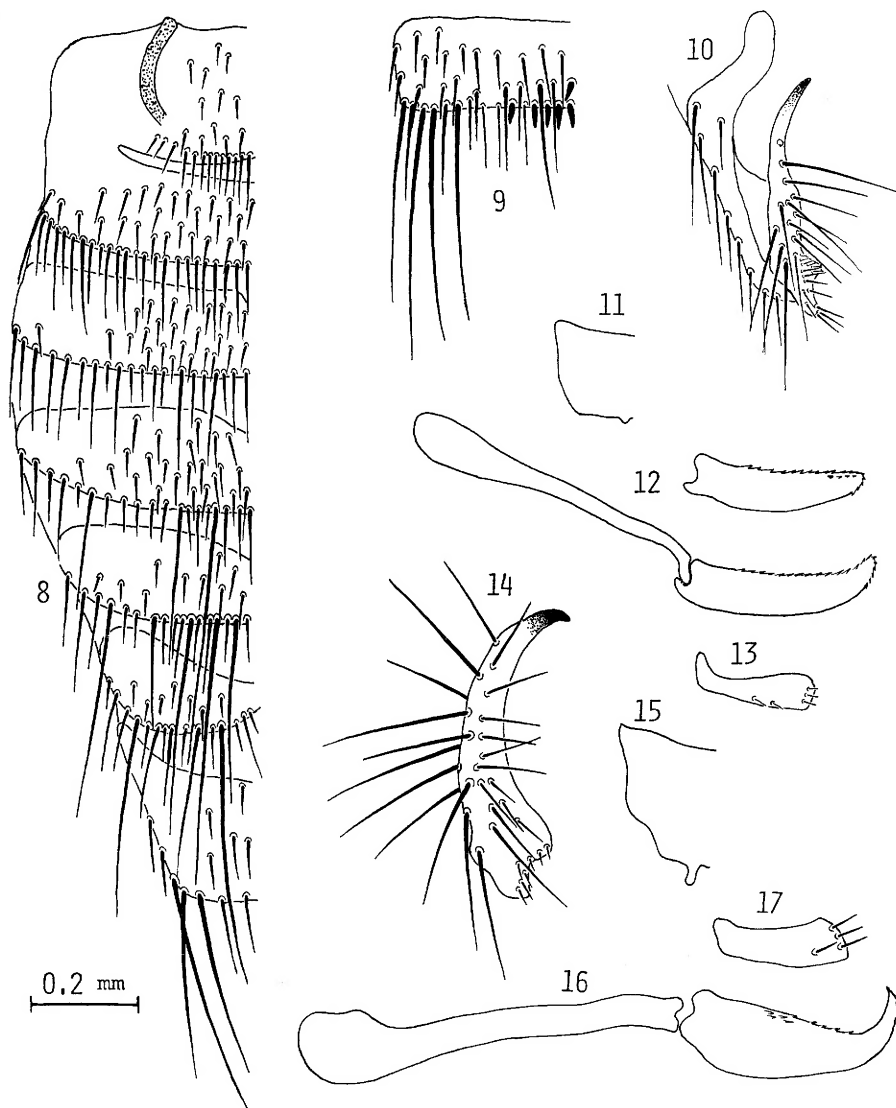
***Basilia truncata endoi* ssp. nov.**

Description. Body brown, length ca. 2.5 mm. Head weakly compressed laterally, in profile slightly longer than high, anteriorly fringed with a row of setae, occasionally with an additional row of 2-3 short setae medially; gena with 5-10 short setae; eye with 2 facets, pigmented around the base; palpus ca. $\frac{2}{3}$ as long as profile height of head capsule; labial theca as long as wide and longer than labella. Thorax shorter than wide; sternal plate of holotype female 18.5×23 , widest at a point anterior to coxa III, its posterior margin weakly concave; oblique sutures forming a right angle at the middle; median suture widened at the middle; surface almost uniformly covered with short setae, posteriorly fringed with a row of longer setae, 4-5 (2+2 or 2+3) of which distinctly longer than others; notopleural setae 11-15 in number. Legs hardly showing any sexual dimorphism; relative lengths of femora I-III and tibiae I-III of holotype female 17.5:21.0:21.5 and 15.0:16.0:15.5, relative widths of the same, 7.0:8.5:8.0 and 4.5:5.0:4.5; anterior surface of femur I evenly setose all over, those of femora II and III bare at dorsal $\frac{1}{3}$ and $\frac{2}{3}$, respectively; tibiae each with a very small group of pale setulae on the anterior surface near the apex and with 3 rows of ventral bristles, 1st row arising from a point just distal to the tibial midlength, bristles of 3rd row reaching far beyond tibial apex; basitarsus III ca. 3 times as long as total length of tarsomeres II-IV.

Abdomen of ♀. Tergite I wider than long, median surface with short setae, posterior margin round and fringed with long setae, 1-3 of which at each lateral corner conspicuously long, nearly equal to the length of tergite II; tergite II large, wider than long, posteriorly weakly concave, postero-lateral corners strongly sclerotized, median $\frac{1}{2}$ of its surface with short spine-like setae, posterior margin fringed with a row of long bristles and short spine-like setae; tergite VI wider than long, surface with a few short spines and posterior margin fringed with a row of long bristles and short spine-like setae; anal segment short, with short setae on surface and with long bristles at postero-lateral corners; laterite I (postspiracular sclerite) with 6-7 short setae; lateral connexivum setose ventrally at the level of sternites III-VI; synsternite I+II of holotype female $7.5 \times$



Figs. 1-7. *Basilia truncata endoi* ssp. nov. ♀. 1: Thoracic sternal plate. 2: Femur III. 3: Tibia III. 4: Abdomen, dorsal. 5: Synsternite I+II, abdominal ctenidium is drawn partly. 6: Abdominal apex, ventral. 7: Postgenital, infra-anal and adanal plates. Scale: 0.05 mm for Fig. 7, 0.2 mm for others.



Figs. 8–13. *Basiliscus truncata endoi* ssp. nov. ♂. 8: Abdomen, dorsal. 9: Synsternite V+VI. 10: Anal segment and clasper, ventral. 11: Genital deckplate. 12: Aedeagus and aedeagal apodeme. 13: Paramere.

Figs. 14–17. *Basiliscus nattererii* ♂. 14: Clasper. 15: Genital deckplate. 16: Aedeagus and aedeagal apodeme. 17: Paramere.

14.5, covered with short setae except anterior 1/3; abdominal ctenidium of 50–70 closely arranged teeth with 2 (1+1) flanking short setae; sternites III and IV represented by 5–7 and 3–5 rows of setae, respectively, setae in the hindmost row much longer than others; sternite V divided into 2 elliptical lateral sclerites, each with 2–3 rows of setae

of various lengths ; sternite VI with 1-2 rows of setae of various lengths posteriorly ; sternite VII wider than long, covered with 2-4 rows of setae of various lengths ; post-genital plate elongate triangle with ca. 8-9 short setae ; infra-anal plate very small, round and with 2 setae.

Abdomen of ♂. Tergite I without long setae on posterior margin ; tergites II-VI with a row of setae of various lengths on posterior margin, their surfaces covered with short setae except lateral parts ; tergites IV-VI anteriorly concave, weakly for IV and V but strongly for VI ; anal segment short, strongly concave anteriorly, with short setae on surface and long ones postero-laterally ; lateral connexivum bare ; synsternite I+II slightly shorter than in ♀, 6×12.5 in allotype male ; sternite III with 4-5 rows of short setae and 1-2 posterior rows of long or moderately long bristles ; sternite IV with 2-3 rows of short setae and 1-2 posterior rows of bristles ; synsternite V+VI with 2-3 rows of short setae on surface, 1 posterior row of bristles and 5-12 spines on the median part of posterior margin ; clasper apically pointed, dark and curved inward ; genital deckplate shorter than wide ; aedeagus gently curved upward, finely spinose dorsally and apically, its apex broadly round ; aedeagal apodeme ca. 1.7 times as long as aedeagus ; paramere truncate at apex, with 1-3 apical setulae.

Type-series. 3♂♂ 4♀♀. Holotype ♀ (on slide), 21 VI 1971, Yabukawa, Iwa-izumi, Iwate Pref., Honshu, ex *Myotis hosonoi*, K. Endo. Allotype ♂ (on slide), same data as holotype. Paratypes. 1♂ 2♀♀ (1♂ 1♀ on slide, 1♀ in alcohol), 28 VI 1969, Gongen, Iwa-izumi, Iwate Pref., Honshu, ex *M. hosonoi*, K. Endo. 1♀ (in alcohol), 27 VII 1972, ex *Barbastella leucomelas*, K. Endo. 1♂ (in alcohol), ex *Murina leucogaster*, K. Endo. The last two were collected also in northern Japan, probably in the Tohoku district of Honshu, but have no locality records. The specimens will be preserved in the National Science Museum, Tokyo.

Notes. This differs from *Basilisa truncata truncata* Theodor, 1966 of Mongolia in the following characters (in parentheses for *B. t. truncata*): ♀, tergite I with conspicuously long setae near lateral corners (without this type of setae), tergite VI with a few spines on surface (without spines on surface), postgenital plate elongate triangle with ca. 8-9 setae (flat triangle with 6 setae) ; ♂, synsternite V+VI with 5-12 spines on posterior margin (3-6 spines), aedeagal apodeme more slender (thicker). Paratypes of the nominate subspecies were examined by myself but in alcohol, therefore the difference in genitalia is based on the original description and figures.

Basilisa truncata resembles *B. nattererii* (Kolenati) of Europe except male genitalia. The following differential characters may be added to those indicated by Theodor (1966) (in parentheses for *nattererii* from France): body smaller (3-3.5 mm), the ratio of femur lengths to widths ca. 2.5 or more (ca. 2.2), tibiae with 3 rows of ventral bristles arising from a point just distal to the midlength of each tibia (with 4 rows arising from more distal point), ♀ tergite II with setae on ca. 1/2 of its surface (with setae on ca. 2/3 of the surface).

Most probably, *endoi* is an exclusive parasite on arboreal bats since three known hosts are all arboreal. Five out of seven type specimens were collected from *Myotis hosonoi*, which must be a principal host. This bat is a close relative of *Myotis mystacinus*, the type host of the nominate subspecies, and now regarded to be endemic to central-northern Honshu, Japan. *M. mystacinus* itself also occurs in the same area and Hokkaido, but no batflies have been recorded from this bat which is very rare in Japan.

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日本新記録のコウモリ寄生バエ 2 種 (双翅目, クモバエ科)
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Penicillidia monoceros および *Basilina truncata* を我国から初めて記録した。いずれも北日本の森林性コウモリから採集された。後者は基産地である蒙古の標本と形態的に区別できるので、新亜種 *endoi* として記載した。

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